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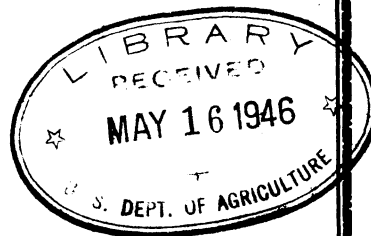
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The EXTENSION ANIMAL HUSBANDMAN



**UNITED STATES DEPARTMENT
OF AGRICULTURE
WASHINGTON,
D.C.**

UNITED STATES DEPARTMENT OF AGRICULTURE

Washington, D. C.

THE EXTENSION ANIMAL HUSBANDMAN

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GRADING LIVESTOCK

By L. B. Burk, Marketing Specialist,
Agricultural Marketing Service,
U. S. Department of Agriculture.

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Livestock grading and interest in marketing livestock according to the U. S. official grade standards are spreading to many sections of the country. In some cases the grading is confined largely to cattle, while in others it is applied to lambs and veal calves.

Selling cattle on the basis of Federal standards was started about six years ago at the Savannah (Ga.) Livestock Show where the cattle on exhibition were graded, marked, and sold at auction. In this first sale, buyers bought the cattle according to grade. The prices that were paid for the different grades demonstrated to the large audience of farmers, 4-H Club members, and others that when the animals were graded and identified by their correct grade, the selling price and grade were closely related.

Every year since that time not only have the exhibit cattle at Savannah been classified according to U. S. standards and sold on the basis of grade, but the practice has spread to a dozen or more other livestock shows within the State. Furthermore, this practice has been extended to Florida, Alabama, North Carolina, and recently to Mississippi. During the last few years thousands of cattle have been graded and sold in this manner. Each sale is a demonstration before hundreds of people. It is an educational feature of each show which creates much interest and tends not only to familiarize farmers and stockmen with the standards but also serves as a guide by which they can direct their breeding and feeding practices.

About the same time the cattle grading was started the grading and marketing of lambs cooperatively according to the Federal grade standards for that commodity was inaugurated in Virginia. Within a comparatively short time similar action was taken in North Carolina, Tennessee, and West Virginia. These States, however, have confined their activities to market lambs, of which many thousands have been graded each year. It took a few trial shipments in each State and a comparison of results with those obtained when the lambs were sold by other methods, before producers began shipping a very large volume. However, from year to year the number of lambs that were sold on the basis of grade in each State increased. According to official reports for 1939, there were 84,000 sheep and lambs graded, marked, and sold by grade in Virginia; in West Virginia the total for that year reached

104,000 lambs. During the last two years the management of the local auctions in these two States have requested the State graders to grade all of the lambs that passed through their sale rings during the lamb marketing season.

Lamb grading programs are being conducted by the respective extension divisions in Ohio, Iowa, Kansas, and Missouri. In other States and areas grading demonstrations are reported, all of which indicate the increasing interest in livestock grading.

The Purposes of Grading

The purposes of grading are: (1) to facilitate the sale of livestock on the basis of their value; (2) to indicate to the producer and others the grades that are in greatest demand; (3) to enable the buyer to purchase the grades desired and not be forced to take grades he does not want; and (4) to make reports of market transactions more accurate and more easily understood.

In the grading of livestock the following points need to be considered: (1) It is essential that the standards be uniformly applied; (2) grading must be done rapidly and accurately; (3) pens and equipment should be arranged so that the grader can grade animals as rapidly as they are weighed; and (4) the identifying marks should be distinct and reasonably durable.

In order to insure that the grades were understood and applied as uniformly as possible in all States where lambs were being graded, demonstrations, or so-called grading schools, were held. They were attended by marketing specialists, extension animal husbandmen, graders, and others, who were given an opportunity to grade a group of lambs together and compare results. A member of the Agricultural Marketing Service of the U. S. Department of Agriculture in cooperation with the State marketing specialists conducted these schools and assisted in interpreting the official standards.

In these schools about 60 lambs were used which represented the various grades. The lambs were numbered and each member of the group present was required to record his grade of each lamb on a card. Later, all cards were collected and the grades of the several graders compared with those of the official grader. At the beginning of the grading the standards for each grade, method of handling the lambs, and proper position of the lambs while being graded were explained and discussed. After each person had graded all of the 60 lambs, the man conducting the school announced his grades, which were used as a basis of comparison. These official grades were recorded on each member's card so that he might compare them with his own. The cards were then

given to a committee consisting of a representative from each State for tabulation and mimeographing, so that each would have a copy of the results. Usually arrangements were made in advance to have the lambs slaughtered at a nearby packing plant and on the following day to have the carcasses inspected, graded, and the live and carcass grades compared.

Grading Schools Show Value of Standards

The results of these tests were very gratifying as a rule, because they showed that there was a very high degree of uniformity between the graders and that their grades corresponded closely with both the live grades and carcass grades of the official grader. Through these practical demonstrations the graders gained additional information, confidence in the standards, and confidence in their own ability to apply them properly.

In addition to the schools, the Federal representative spent several days each season in most of the States, inspecting graded lambs and working with the different State graders in order to determine the accuracy of their work and to suggest such changes as appeared necessary.

In grading and marking large number of lambs for immediate sale or shipment, it is necessary to arrange pens so the work can be done rapidly.

At the time the lambs are graded they are marked with chalk or a washable branding fluid to designate the grade, because each grade group is required to be weighed and sold separately. In order that a single grader may be able to grade and mark 1,500 or more lambs per day, which frequently is done, the pens and marking facilities should be suitably arranged. It is necessary to have four or five small pens approximately 4 foot wide and 8 feet long adjacent to the scales. As soon as the lambs are placed in the small pens the grader begins work. He handles each lamb individually and as soon as he makes his determinations, marks its grade. The color marks of the four top grades are placed on the animal's head. Those used by the States of North Carolina, Tennessee, Virginia, and West Virginia are as follows: for Choice and Primo, blue; Good, red; Medium, yellow. The Common grade is designated by the red figure "4" in the center of the back; the Cull is marked with two red 4's in the center of the back.

An owner may have only enough lambs to fill one pen, or he may have enough for two or more pens. When the lambs of an individual owner are graded and marked they are then weighed by grades and he is

given a scale ticket on which the weight of each grade group is stamped. The animals are then placed in large pens with other owners' lambs of corresponding grade after which they are ready for sale. Car or deck loads of a single grade are sold together when the numbers are large enough to justify. In other instances all the lambs of a particular grade are sold in one lot. The owner retains his scale ticket until after the lambs are sold and then is paid on the basis of the weight shown and the prices each grade brought.

Lamb Grading Benefits Summarized

In summarizing the results of marketing lambs on the basis of grade, there are certain accomplishments that are apparent: (1) The producer is paid on the basis of the market value for each grade of lambs included in the shipment. (2) He learns the characteristics of the lambs that are typical of the grades, which knowledge serves as a guide when culling his flock or selecting his breeding animals for the following year. (3) This marketing practice tends to improve the general quality of all the lambs produced. (4) It enables producers to market their lambs at several different times during the season just at the time they are ready for market. (5) It enables the buyer to purchase only the grades he wants. It also enables the buyers to estimate the yields and determine the carcass grades with a high degree of accuracy because the individual animals in each group are uniform. (6) A more accurate basis for reporting market transactions is provided and these transactions are more readily understood.

These results indicate, therefore, that livestock can be graded with a reasonable degree of accuracy by qualified men who use the same standard and that such standards are beneficial to both the producer and the buyer.

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JUNIOR PROJECT FINANCING

In four years of successful financing of 4-H Club and Future Farmers projects, local production credit associations have loaned more than one and a half million dollars.

Under the supervision of teachers of vocational agriculture, county agents, club leaders and other farm leaders, more than 8,000 boys in 1939 alone borrowed \$584,000 to finance baby beef projects, dairy, poultry, corn and a wide variety of other activities. Loans are being made in every section of the United States. During 1939 the largest amounts were reported loaned in the St. Louis, Houston, Wichita, Louisville and Columbia, South Carolina, Farm Credit districts.

The repayment record of these boys has been good. In the past, 4 of the 12 Farm Credit districts reported no losses. --C. R. Arnold, Farm Credit Administration.

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THE NEBRASKA CITY SWINE IMPROVEMENT
PROJECT AND DEMONSTRATION

By W. W. Derrick, State Extension Agent, Animal Husbandry,
University of Nebraska

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The shortage of grain feeds suitable for hog production, due to five years of drought, has caused Nebraska hog farmers to cut down their herds and in many instances go out of business altogether. The 1938 crops showed improvement over the three years previous and it looked as though the time was ripe to begin a program of rehabilitating the swine industry. A program of this kind also afforded an excellent opportunity to do some valuable work on type improvement, better feeding methods, hog lot sanitation and management practices.

This project was set up at Nebraska City with Wilson & Co., the agricultural college and the extension service cooperating. Nebraska City was selected because Wilson & Co. maintain a market hog concentration point there and this afforded an excellent opportunity to select gilts, and house and care for them until they were to be distributed. Also, southeastern Nebraska normally is a heavy hog producing area.

Seventy-five gilts were selected from the daily buy of market hogs for this project. Only gilts of quality with deep, smooth sides, full plump hams and wide, even backs were selected. These gilts were vaccinated for protection against cholera, flushed, and dipped. They were housed in pens that had been scalded with boiling lye water and sprayed with a strong disinfectant. They were self-fed a balanced ration. Wilson and Co. purchased Berkshire, Spotted Poland China and Hampshire boars. These boars were of the thick, meaty type. Along in November each gilt was mated to the boar that seemed to best suit her type. The gilts were held until the middle of January when they were sold to 4-H club members, Smith-Hughes students and farmers for a price which covered first cost and a part of the feed and vaccination costs. The day the gilts were distributed an educational program was held in which the fundamentals of clean ground management, good feeding practices and practical hog management were discussed before those participating in the project and a good crowd of farmers from several adjoining counties. Those desiring to purchase gilts had filed an application and they were permitted to select the gilts in the order their applications had been received. Mothers of the boys in vocational agriculture classes and the home economics girls prepared a noon luncheon and served it at a small charge.

Extension specialists, county agents and others called on the

purchasers several times during the spring and summer to watch the progress the sows and litters were making and to lend any assistance possible. The project was closed with a program and market barrow show on September 16 at Nebraska City and a carcass show and demonstration at Wilson & Co.'s Omaha plant on September 19. Wilson & Co. furnished all prizes. The exhibitors did not have to sell, neither did they have to sell to Wilson & Co. However, the pigs ready for market were purchased by Wilson & Co. and went into the carcass contest. The finish-up meeting was attended by 250 leading livestock men, breed representatives, 4-H club boys, Smith-Hughes students, farmers and others.

A program was held just prior to the show where the objectives of the project were reviewed and the activities discussed. The records of the project participants were reviewed and discussed. The records, as well as the pigs, clearly demonstrated that those who had followed proper sanitation, management and feeding practices were successful in raising good litters, whereas those who had not done so were not so successful. Other extension workers, members of the animal husbandry staff and of Wilson & Co. spoke on the prevention and control of diseases and parasites, the efficient use of feeds, the type of animal preferred by the trade and the type which will ultimately bring the most money to the producers. Prof. Wm. J. Loeffel, chairman of the animal husbandry department, and F. L. Love of Wilson & Co. gave a carcass cutting and grading demonstration to show how overfinished hogs are undesirable, why underfinished, poor quality hogs must be discounted, how the modern housewife prefers to have her meat cut and trimmed and what all this means in terms of production and marketing.

Only barrows (progeny of the gilts) were eligible for competition in the afternoon show. The show classification provided for individual barrows and pens of three farrowed prior to April 1, individual barrows and pens of three farrowed on or after April 1. The same classification held for the carcass contest.

An appropriate sign was made for each exhibit giving the name and address of the exhibitor, breed, number of pigs farrowed, number raised, rations used, sanitation and management practices followed. This information showed the value of all the recommended practices, good type, quality, and breeding. It was a case of "seeing is believing" to examine the record and the pigs and correlate the size and quality of the litter with the production methods followed. Those litters which had the benefit of clean-ground production methods and properly balanced rations showed more than enough added weight to cover the expense of these added precautions. The pens of three barrows averaged 210-220 pounds and were from 5-1/4 to 5-3/4 months old.

Probably the most valuable part of the entire project was the way in which these facts and lessons taught were driven home when the carcasses were examined. It clearly demonstrated the difference in types of market hogs in terms of the value of cuts obtained. The value of protein feeding in terms of lean to fat was clearly demonstrated. The contest also gave evidence of the value of careful versus careless handling in the feed lot, en route to market and handling after arrival at the market. The carcass contest gave a realistic picture and proof of the value of good breeding, efficient feeding, sanitation, and other swine husbandry practices recommended by the extension service specialists.

Further evidence that this project has been very much worthwhile is revealed by the fact that more than 200 farmers from surrounding counties asked Wilson & Co.'s Nebraska City representative to assist them in locating or procuring for them breeding stock of the type and quality recommended. The project created a great deal of thought and action on the matter of improving type, more careful selection of breeding stock, efficient feeding, sanitation and other good management practices. This project covered every step from selective breeding to a thorough study of the finished product in the packing house. Likewise the project further demonstrated to all agencies concerned the value of cooperation in livestock improvement.

All publicity relative to the project was released by the editorial department of the extension service through their publicity channels which included several radio talks and many articles in farm and weekly papers and the daily press throughout Nebraska and surrounding States.

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IMPORTATIONS OF PUREBRED ANIMALS

Importations of purebred animals into the United States for breeding purposes increased during the calendar year 1939 as shown by the records of certificates issued by the U. S. Department of Agriculture. A total of 15,212 certificates were issued for purebred animals imported during 1939 or 2,162 more than during 1938.

Of the total importations during 1939, 10,894 were cattle, 2,941 were sheep, 383 were horses, and 77 were hogs. Also, the pure breeding of 1 goat, 906 dogs, and 10 cats was certified. Of the cattle importations, Holstein-Friesians, Ayrshires, Herefords, Jerseys, Shorthorns, and Aberdeen-Angus were imported in largest numbers in the order listed. Of the sheep importations, the principal breeds were Suffolk, Southdown, Lincoln, Shropshire, Hampshire, and Cotswold. The horses introduced in largest numbers were Belgian, Thoroughbred, Percheron, Clydesdale, and Hackney. The hogs were Yorkshires, Tamworths, and Berkshires. Most of the importations were from Canada.

Free entry of purebred livestock is provided, by the Tariff Act of 1930, for United States citizens intending to use the animals for breeding purposes. --U.S.D.A. Press Release.

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SOW TESTING IN MINNESOTA

By H. G. Zavoral, Extension Animal Husbandman,
University of Minnesota.

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The object of sow testing is to develop strains of hogs that will give the best returns over feed costs per 100 pounds of gain. It is a method of finding and selecting the most profitable breeding stock. The continued testing of sows is an important factor in developing strains that will have an inherited rate of rapid and efficient growth.

A record of performance test for sows was begun in Minnesota in 1929. Breeders of purebred hogs were invited to send four pigs, two barrows and two gilts, from one of their best litters to the experiment station at weaning time or when 56 days of age. Since prolificacy is an important factor in hog production cooperators were asked not to send pigs from litters unless there were at least seven pigs weaned from a gilt and eight pigs from an older sow.

The four representatives from the same litters were fed a standard ration at the experiment station until they reached 225-pound weights. At this weight three of the four pigs were slaughtered and a careful study made of the carcasses to determine how closely they met market demands. In addition to the records of the rate and cost of gains obtained during the feeding period, the breeder reported the weight of each pig of the litter at 56 days of age. In this way a measure of the uniformity of the litter was established.

From records obtained over a period of three years, differences in feed costs, in gains, and in carcass values of purebred hogs were studied. It was found that there was a difference in daily gains of slightly more than one-third of a pound per pig and a spread of 72 pounds in total feed required to make 100 pounds gain. There was also a variation in average dressing percentages of 4 1/2 percent, and a difference of 86 cents in the average value of carcasses, calculated upon 100 pounds of live weight of a finished hog. The average daily gain per pig ranged from 1.10 to 1.64 pounds and feed totals for 100 pounds of gain varied from 345 to 409 pounds, and a difference of \$2.00 in the value of a 225-pound hog carcass showed up.

These facts clearly pointed out that there was a difference in the strains of hogs regarding feed costs and carcass values. Thinking along this line paved the way for a method in selecting breeding stock. It was agreed that since hogs are graded on the hoof and not on the hook, the producer is looking for the heaviest hogs in the shortest

time on the least amount of feed. Just how much of a hog's ability to make rapid, economical gains may be attributed to inheritance is hard to answer. But because dairymen have made progress by continually keeping breeding stock from the highest producing dams, there appeared to be no reason why hog producers could not do the same thing. The nearest approach thus far devised toward that end is what is known as sow testing.

A Minnesota sow testing project was organized in 1934. A suggested system of ear marking, a record blank for litters and an outline of the objects of the work were sent to prospective cooperators. Sixty-three farmers from 12 counties signed enrollment cards signifying their intention to cooperate.

This project, however, workable as it might appear to be, ran into many practical difficulties. About 20 percent of those who signed up did not mark the pigs. Another 20 percent did not weigh at weaning time, and only about 25 percent did both the marking and weighing at weaning time. Very few weighed the pigs at 180 days, but of course that is much more difficult than weighing at weaning time.

However, it was a start and some practical results were obtained. The county agents and specialists were busy doing educational work for the triple-A program and very little time was available for other work. Hogs were low in price and it was hard to maintain interest in sow testing. But some of the original cooperators signed up again, and a few new swine raisers joined them.

Results from this effort after three years' experience showed that some litters weighed much more than others at weaning time, even when difference in size of litters was allowed for. The heaviest litters at weaning time continued to be the heaviest throughout the growing period. Sows were culled on the basis of weight per litter at weaning and gilts for breeding were selected from these heaviest litters. Cooperators reported marketing their hogs in 6 months instead of 7 and 8 as formerly. One man reported 210-pound pigs in 5 months. He attributed the increased weights more to the selection of breeding stock than he did to better feeding. The producers that followed sow testing were sold on the results. The trouble lay in that only an insignificant number would cooperate. They just would not do the necessary work themselves. This, we learn, is also true in cow testing. If a regular tester does not come around to do the detailed work, farmers will not do it.

Consequently, out of this experience we felt that a new approach was needed. On April 1, 1937, a livestock record association was organized in Fillmore and Houston counties. Forty-five farmers signed up to pay a full-time fieldman to do sow testing, cow testing and supervise

farm records. Blanks for sow testing were provided. Each litter of pigs was to be marked at birth and weighed at 56 days as provided by the former plan. The main difference between this and the earlier, less successful attempt was that a regular fieldman was available to do the weighing and promote the project generally. The fieldman was paid by the farmers themselves. In this project the livestock specialists were given an excellent opportunity to do educational work with individual producers. Several meetings were held with the cooperators both in the spring and in the fall. The fall meetings were in the form of demonstrations.

At the fall meetings the pigs were divided by litters and the breeding gilts for the coming year selected from the best litters as a method demonstration. Such selections were made from litters that averaged 7 or more pigs per litter, and that were uniform in size and type and the heaviest at 180 days of age.

The heaviest pigs at weaning time, with few exceptions, were found to be the heaviest at 180 days. Pigs weighing less than 30 pounds at 56 days were found to make gains too slowly and it took them too long to reach market weights. On farms where the pigs weighed around 35 to 40 pounds at weaning, 200-pound weights were reached in six months. Good feeding and management of course are large factors, but there was a definite correlation between heavy weaning weights and early marketing weights. The good milking sows produced the biggest pigs.

Most of the same cooperators, with some new ones, continued this sow testing program in 1938. The same fieldman supervised the work and pigs were earmarked and weighed on 37 farms. Some of these pigs were sired by boars from tested sows.

A great deal of interest is being exhibited by these cooperators as shown by the fact that they continued the work in 1939 without a fieldman. They know by comparison that there is a great difference in the weight of hogs at a given age. They have the third generation of pigs from selected sows and are beginning to talk about inherited capacity for efficient gains. One producer who used a boar from a good heavy litter marketed his pigs at 5 days short of 5 months, weighing an average of 200 pounds.

At the sow selection demonstration meetings last fall, farmers with slow-growing, late-marketing pigs inquired about purchasing gilts from persons who weighed their litters. Cooperators with good records inquired about even better boars from tested herds. Some of these men do not hesitate to pay a good price or go a long distance to buy a boar to be used in a herd maintained entirely on a market hog basis. It will pay purebred breeders to keep weights on

their pigs, at least at weaning time. Danish farmers have followed this system of selecting their breeding stock for more than 20 years. But they also go one step farther and select them for economy of gains and carcass requirements. Our system for the present depends principally upon weights. If it proves out, and we have every reason to believe it will, we will then pay more attention to market requirements.

In addition to the more formal program, a large number of farmers scattered over the State are marking their pigs and selecting their breeding stock from the heaviest litters. Many high school agricultural instructors also are interested in the work and making it a project for their students. Mr. P. J. Holand, vocational agricultural instructor at Austin, has supervised the marking and weighing of litters for over 50 farmers in 1938 and 1939. He has devoted most of his time to this work and is giving his cooperators valuable information on breeding, feeding and management. He is also paying attention to carcass requirements by getting yields at the packing plant. A sale of tested boars and gilts from Mower and Jackson counties was held last fall and other sow testing associations are now in process of organization.

Fifty sets of four charts each have been prepared for the use of county agents in helping them explain sow testing work. Chart No. 1 explains the ear notching system, chart No. 2 shows record sheet for litters, chart No. 3 is devoted to 56-day weight selection, and chart No. 4 discusses litter history and advanced pedigree requirements.

Sow testing will continue to prove that there is a difference in hogs. Our records show that some sows will produce twins and triplets weighing 20 to 30 pounds apiece at weaning time and only 150 pounds at 6 months of age. On the same farms other sows will save 10 to 12 pigs at weaning time weighing 50 pounds apiece and over 200 pounds at 6 months of age. Before purchasing boars for future use, swine growers will want to know more and more about the record of performance of their ancestors.

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PUREBREDS FOR SCRUBS

A pedigreed Hereford was given away recently by the New Orleans stockyards in cooperation with the Association of Commerce in a drive to promote blooded stock on the range and higher income for the farmers. Each farmer who brought a scrub bull to the stockyards for sale was given a chance on the bull. The idea is to get rid of as many scrubs as possible and replace them with pedigreed animals. The contest will be repeated every three months. The first drawing resulted in farmers bringing approximately 1,000 scrub animals to the packing plant. Live-stock men, in an educational program through the cooperation of the newspapers and the county agents, pointed out that calves sired by a pedigreed bull will bring twice as much as those from a scrub animal.

--From Southern Agriculturist.

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THE BILLINGS JUNIOR FAT STOCK SHOW

By Howard G. Lewis,* Livestock Specialist,
Montana State College

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By increasing in size more than 100 percent in one year, the regional junior fat stock show held at Billings, Mont., late in 1939, took its place among the top shows of its kind in the nation. The show is run by a local committee of which the county agricultural agent of Yellowstone County is a member, with the aid of the livestock specialist of the Montana extension service. Every effort is made to keep the event on a practical basis. Regular packer buyers are depended on to buy the stock and such experienced buyers and the commission men do the judging. No champions are picked. The entries are graded into groups representing Prime, Choice, Good, Medium and "Sifted". Interest in the grading is intense.

The 1939 show drew more than 1,000 animals - fat steers, fat barrows, and fat lambs - which was more than double the number exhibited in the first show in 1938. These animals were owned by 440 boys and girls, all members of Montana and Wyoming 4-H and F.F.A. clubs.

The sponsors of the show were more than pleased with the quality of the stock as shown by the results of the grading. Of the 343 head of fat calves exhibited, 10 were Prime, 42 Choice, 184 Good, 102 Medium, and 5 "Sifted". The average prices received per hundredweight for each grade were - Prime, \$14; Choice, \$10.45; Good, \$9.61; Medium, \$8.83 and "Sifted", \$7.66.

As a climax to the show, animals grading Prime and their owners were eligible for a trip to the International Live Stock Exposition at Chicago. From the 1939 show 7 boys and girls, all 4-H club members, qualified for the trip. Their animals consisted of 5 calves (three of which were in the money at Chicago), one pen of lambs (which placed fourth), and one pen of barrows (which did not win a place).

The system of judging used and the way the show was conducted generally proved popular as was evidenced by the large growth of the event in one year. Those voicing approval included the exhibitors, most of the breeders, county extension agents, vocational agricultural instructors and others witnessing or participating in the show.

Exhibitors were pleased chiefly because they had the opportunity to see the real commercial value of each and every entry.

*Mr. Lewis resigned Feb. 1, 1940.

THE DRAFT HORSE IN PENNSYLVANIA

By C. A. Burge, Livestock Extension Specialist,
Pennsylvania State College

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That farmers continue to rely on horses for farm use is indicated by the fact that several thousand head have been brought into Pennsylvania annually for the past five years. The absence of a city market for good horses at profitable prices doubtless has discouraged many farmers in raising horses. Large numbers are being imported each year and there has been a great scarcity of young animals.

While many colts are being raised, yet the number comes far from replacing the old and worn-out horses. Statistics compiled by the U. S. Department of Agriculture indicate that the number of horses and mules is still on the decline. Not many years ago horses could be purchased at a price which made it more economical to buy them than to raise them. Colts produced for the farmer's own use save him money in producing his own power. There is a tendency toward more mares being bred and foals are again seen on many farms. Statistics in Pennsylvania indicate that since 1934 there has been roughly a 50 percent increase in the number of colts under two years of age on farms.

The Keystone Gold Medal Colt Club has done much to stimulate interest in young horses. The object of this club is to show the value of care, breeding, and liberal feeding in the development of draft horses. In this colt club project the members of the club grow out and develop the colts and make required gains in one year's time. Awards are made at the end of a year on the basis of weight, and the show record of the colts. The round-up meetings and demonstrations at the end of the year have been well attended and interesting facts are usually brought out. Many people are of the opinion that foals, after being weaned, can shift for themselves and still make desirable draft horses. Many of the colts coming in to these round-ups as yearlings are well grown out and weigh from 1100 to 1,400 pounds, while others weigh only 800 to 1,000 pounds. This has shown very clearly that feed and care have made a vast difference in these colts.

The man who is raising colts on his farm is producing his own horse power. He is producing grain and hay and is thus producing his own power and fuel with little cash layout. Horse costs are chiefly non-cash costs. The farmer who raises colts for replacement, who breaks them as three-year olds, winters them after the work

season by turning on pasture, provides open sheds for stock, and good pasturage where he turns his work animals during the working season, is keeping costs down to minimum and has no cash outlay for his power except for harness and shoeing.

The greater use of pasture for young stock and for work animals reduces costs of keeping work horses. The use of pasture in horse management lessens cost of maintenance. No pasture is superior to good bluegrass. Colts can be carried from weanlings to three years of age successfully on good pasture plus some grain and some other roughage, most of which is available on every farm. Most of this rough feed has no cash value, as the range of stubble fields, corn stalk ground, and hay or straw has little market value.

On the average, our work horses are fed too highly - why fire a furnace when heat is not needed? It is the same with a mature horse; unless he is working he does not need the heat and energy generated from heavy feeding, and to pour grain into him when idle is wasteful. Give him enough feed to maintain body weight but let it come from pasture, hay, and other forage. From the standpoint of comfort of work horses, it is more humane to keep them on pasture when they are not at work. Mature animals not needed for work should be allowed to run on pasture continually with access to an open shed and good roughage to supplement such grazing as they will obtain from pastures, stalk fields, and meadows. It is not necessary to feed mature work horses grain throughout the winter period when they are idle, for if they are getting a fair amount of feed from pastures and what corn stover or good oat straw they will eat, plus four or five pounds of leguminous hay per head three times per week, they will not require any grain. This is a practice of hundreds of farmers and has proved satisfactory. Many farmers make use of lots or paddocks; these should be well drained so that horses may have reasonably dry footing. In these lots many farmers have hay racks where oat straw and some hay may be placed for the horses when out in the lot, the idea being to have horses turned out in the lot during spring or whenever idle. They will get the fresh air and sunshine with access to good roughage before pastures are ready for use.

The average Pennsylvania farm is small - only 89 acres, and is particularly adapted to be worked by horse units. Two and three horses seem to be the average number on these farms. In several of the counties where larger farms are being operated and more horses kept, farmers are realizing the need for more efficient use of the horse and the man labor. To that end the multiple hitch is being used in these counties. This hitch is a labor-saving principle,

whereby horses in any sized team from four to ten can be driven by one man with one pair of lines, or one line if preferred. These hitches make it possible for one man to do two or three times the work of a man driving one pair of horses. It means faster work and the use of less hired help. The use of this hitch puts more power under one man's control and he can regulate the size of the hitch to fit the job. The more common hitch is the five-horse unit, this being used on a gang plow, double disk, or binder. Many men are realizing the value of the horse as a source of power, and are cutting expenses by using their horses in larger units with less hired help, and keeping the maintenance costs down by use of pastures and unmarketable feeds about the farm.

This is a time when the brood mare should be given more consideration. Only 50-60 percent of the mares bred each year produce living foals. A large percentage of this loss can be prevented by proper feed, care, and management of the brood mare.

Idleness, the bane of horse breeding, should be avoided. Working mares are more certain to produce good foals than idle ones, but judgment must be used in working them. Too heavy pulling, over exertion, and backing heavy loads must be avoided. When idle, the mare is best cared for by having the run of a pasture as exercise is a requisite of a brood mare.

As foaling time approaches, it is advisable to lighten the work, but many cases are on record where mares are worked up to the day of foaling with no ill effects. The feeding of a working brood mare is not difficult. A well-balanced ration is essential, using feeds containing plenty of protein, lime, and phosphorus. Mares used only for breeding purposes do well without grain if they are on a nutritious pasture.

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1940 LIVESTOCK REPORTS

The following livestock reports, issued by the Agricultural Marketing Service from Washington, D. C., will be released at 12 o'clock noon on the dates shown:

Apr. 11	Cattle on Feed	Aug. 2	Wool Shorn
" 12	Development of Early Lamb Crop	" 12	Cattle on Feed
May 1	Farm Production from Meat Animals (1938 and 1939)	Oct. 9	Cattle Feeding Situation
May 13	Development of Early Lamb Crop	" 11	Lamb Feeding Situation
June 7	Spring Pig Crop	Nov. 13	Cattle Feeding Situation
July 25	Lamb Crop	" 14	Lamb Feeding Situation
		Dec. 12	Cattle Feeding Situation
		" 13	Lamb Feeding Situation
		" 23	Fall and Total Pig Crop

Copies will be available on request.

4-H BOYS STUDY MARKET PIGS AND PORK CARCASSES

By C. W. McDonald, Extension Animal Husbandman,
Iowa State College

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Iowa 4-H pig club boys have been studying the market pigs they are producing and the kind of carcasses produced from those pigs. This opportunity for study has been provided for the past five years at the annual market hog and carcass judging contest held at the Iowa State Fair.

Entries in this class are limited to market pigs farrowed on or after February 1 and weighing 170 to 250 pounds, and only one entry is permitted to a boy. A maximum of 30 pigs may be shown. If more than 30 are entered, the superintendent of the department will prorate the number to be judged according to the total number of pigs entered from each county.

Before these hogs are placed by the official judges a market pig judging contest is conducted. County judging teams of 3 members each are required to place 3 classes of 4 barrows each. Each contestant then ranks the pigs in each class according to his estimate of the quality of carcass that each pig will yield after slaughtering. The official placing of each class is made with the carcasses and the contestant's score based on final carcass placings.

Following the judging contest all of the pigs entered in this division are driven into the ring for grading by the official judges. These hogs do not compete in the regular 4-H fat barrow show but are judged as a class of market hogs which are to be slaughtered immediately. The hogs in this class are graded on foot into "Choice and Prime", "Good" and "Medium" and are awarded blue, red and white ribbons respectively. Immediately following the grading the hogs are trucked to the Iowa Packing Company plant in Des Moines. Here each hog is tattooed, weighed, and priced according to that day's market for its weight and grade.

Up to this point the club member has seen a practical grading demonstration backed by the packer paying for each hog according to its grade and weight. But, were the judges correct in their grading? The boys say, "We shall see". They know the hogs are to be slaughtered on Saturday, and on Monday morning they will have an opportunity to compare the carcasses of pigs that they showed with those of their neighbors.

Monday morning these carcasses are placed by the extension

meat specialist and a representative of the packing company. The carcasses from the pigs that were in the boys' judging contest are arranged on the rail in their respective classes. Each carcass is tagged with the eartag number, the owner and the dressing percentage. The boys and their leaders are brought to the plant at 10 o'clock the same morning and given an opportunity of seeing the carcasses and comparing the carcass placing of the judges with their own estimate made before the pigs were slaughtered.

For the past two years a champion and reserve champion have been placed on foot and the same two hogs have been placed first and second in the carcass even though the carcass judges were not aware of the identity of the pigs. On the whole the grades placed on the live hogs have stood up in the carcass but not always. And then we hear, "My pig was in the red ribbon group on foot and now he is in the blue ribbon carcass group. I knew he was a good pig."

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A TRIBUTE

During the past 25 years, the Agricultural Extension Service has achieved one of the greatest educational accomplishments that has ever been achieved at any time or at any place in the history of mankind.

This is a large statement. But I make it advisedly.

The accomplishment which Extension has brought about in one generation is a change in the attitude of farm people towards science in agriculture. The great mass of the farm population of this country now accept it. Twenty-five years ago, when extension work started, there was a broad fringe of people who accepted scientific agriculture. But in their attitude the great mass of farmers reflected one of two views -- skepticism or smugness. They were either skeptical or they showed a kind of entrenched egotism that made them feel it was a little beneath the dignity of a "practical" farmer to have anything to do with "theoretical farm experts." Much of the scientific agricultural thought simply did not register in the minds nor in the culture of the great mass of farmers. Some said "it was just another way of spending the taxpayers' money." If, twenty-five years ago, there had been a Gallup poll of farm opinion on a question that might have been stated--Do you think there is anything of practical value to you and your farm in scientific agriculture?--likely as not the great mass of working farmers in the United States would either have voted "no" or would have been neutral. I'm convinced that if such a Gallup poll were made today ninety percent of the farm people would answer "yes." In other words, in this generation, in this short space of a quarter of a century, there has been this change of attitude from skepticism and self-satisfaction to acceptance and confidence in scientific agriculture. I know of no other accomplishment in the field of adult education anywhere that even begins to approach this change. -- M.L. Wilson at 1939 meeting of Association of Land-Grant Colleges and Universities, Washington, D. C.

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MAKING SILAGE FROM HAY CROPS
WITHOUT THE USE OF A PRESERVATIVE

If a person wishes to save the expense and trouble of using a preservative, he can make good silage by following the methods and exercising the precautions described below.

1. See that the walls and doors of the silo are airtight or practically so.
2. If the cereals, grasses, and legumes for the silo are harvested during a dry spell of weather, put them in as soon as possible after mowing.
3. If they are not harvested during a dry spell, allow immature cereals, grasses, and legumes to wilt for 2 to 4 hours on a good drying day or longer on a poor drying day; cereals and grasses cut after the blooming stage need not be wilted but alfalfa and clovers cut when in bloom or before and soybeans when the beans are beginning to form or before should be wilted.
4. When the crops are chopped they should not be set with rain nor with much dew.
5. Set the silage cutter to chop in 1/4 inch lengths.
6. Pack the material in the silo uniformly but keep the center somewhat higher than the sides. In settling, this will tend to press the silage firmly against the wall and thus keep air from entering between the silage and the wall.
7. If possible, do not allow more than 1 day to elapse while filling. Some of the top may spoil if exposed for more than 48 hours between filling operations.
8. Top off the silo with 2 feet of the heaviest, greenest material obtainable. This is for the purpose of providing weight to force out the air from the material underneath as well as to provide a seal.
9. Level off and tramp the top thoroughly.
10. Every 2 weeks until the silo is opened for feeding fill any spaces which may have opened at the top between the silage and the wall and tramp well next to the wall.
11. Should any juice be squeezed out of the silage, as evidenced by leakage from the silo, see that it has the opportunity to escape from the silo readily, as waterlogged silage is likely to be of poor quality. --T.E. Woodward, U.S. Bureau of Dairy Industry.

BRIEFS FROM OREGON

I was much interested in the last issue of "The Extension Animal Husbandman", and particularly in the article entitled "Indiana Market Lamb Shows". For a number of years we have been working on that same type of activity in this State and results have been very gratifying. However, the shows held in this State are on a little different basis from those in Indiana. The Oregon shows are held in the counties where the need is greatest for improvement in the selection of market lambs, and we have observed that the lambs from these counties have shown gradual improvement since the work on market quality was started.

Last spring we did some work on the market grading of steers. For some years we had planned to do this in cooperation with James K. Wallace who had given us considerable assistance at different times with similar work. In the demonstrations which were put on we used steers from the Union (Branch) Experiment Station. They were selected from the experimental feed lots and represented the Choice, Good, Medium and Common grades. The steers were transported by truck to four different counties where market grade demonstrations were staged. This worked out very satisfactorily for information was available on the feed-intake of each steer, which gave a very good basis for discussion and comparison.

Everybody was so well pleased with the undertaking that we plan to repeat the demonstrations this year.

In the western part of Oregon we have a large area of logged-over land. Much of this land after logging is turned over to the counties and thereby removed from the tax rolls. This throws added burden on the remaining tax payers of such counties, including the farmers. It has been demonstrated that these lands after logging and being burned over can be seeded to grass. They produce an abundance of feed which is very satisfactory for sheep and beef cattle. An experiment has been undertaken in Clatsop County where studies of different types of grasses and their value when grazed by sheep and cattle are being conducted. Results so far indicate the possibility of considerable expansion in this use of logged-over lands and their return to tax-paying status. --H. A. Lindgren, Extension Animal Husbandman, Oregon Agricultural College.

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GRASSHOPPERS VERSUS COWS

The Bozeman, Mont., laboratory of the Bureau of Entomology and Plant Quarantine, conducted experiments in 1936, 1937, and 1938 to determine the quantity of grass eaten by known numbers of range grasshoppers. These experiments determined that 301,395 grasshoppers destroy enough vegetation to maintain an average-size cow on minimum feed. A cow requiring 3 acres per month for subsistence rations, would have nothing left to eat if these acres had a population of 24 adult grasshoppers a square meter.

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NEW DRUG FOR CONTROLLING ANIMAL PARASITES

A substance that is toxic to insects and of low toxicity to warm-blooded animals, including man, long has been the goal of U. S. Department of Agriculture scientists. Six years ago they found a promising substance in phenothiazine, the parent of many important dyes, which is prepared from diphenylamine, a coal tar derivative, and sulphur. Chemically, it is related to sulphanilamide.

The original piece of research, made by L. E. Smith in the Bureau of Entomology and Plant Quarantine, showed that the chemical possesses value as an insect killer. This led to other important and practical uses for phenothiazine. In the opinion of Department scientists, it is one of the most versatile chemical substances brought to light in recent years.

As soon as manufacturers make suitable application to the Secretary of Agriculture, phenothiazine (being a new drug subject to the provisions of the Federal Food, Drug, and Cosmetic Act) will be released as a medicine for treating certain worm infestations of sheep, swine, and horses, which heretofore have resisted medication. ***

In the animal studies, Paul D. Harwood and his associates in the Bureau of Animal Industry first tried the drug against nodular worms of sheep and swine. There has been no effective remedy for nodular worms, although in the opinion of the Department scientists it ranks with the stomach worm as the cause of inefficient gains and actual loss of sheep.

At the Beltsville Research Center, Beltsville, Md., sheep known to be infested with nodular worms were given a capsule containing about one ounce of phenothiazine. The treatment was 85 to 100 percent effective. Further investigation showed that the treatment also is effective against the stomach worms, both the common and lesser, "bankrupt" worms, and hookworms. Thus, it is a one-drug single-dose treatment for practically all the important worm parasites that infest the gastro-intestinal tract of sheep.

Because nodular worms take from 30 to 80 days to develop, only one dose of the drug may be required each year in the Northern States where the grazing season is short. In the South two or more doses may be required. At the current price of the drug, sheep may be dosed at an average cost of 6 cents per animal. When more frequent treatment is needed only for the stomach worm, the copper sulphate drenching is cheaper.

Doctor Harwood also dosed hogs with phenothiazine by mixing it with the feed. In these experiments the drug was found to be

effective against both the nodular worm and the large roundworm. Heretofore there had been no effective treatment for the swine nodular worm.

A subsequent development was the discovery that phenothiazine is an effective remedy found for treating the strongyles in horses. These internal parasites, of which the palisade worms are the best known, infest horses all over the country. ***

One of the most interesting developments with phenothiazine is the control of horn fly larvae. This work was directed by F. C. Bishopp of the Bureau of Entomology and Plant Quarantine. The horn fly is the tiny black pest that makes life miserable for livestock throughout the summer months. Because they breed in the scattered droppings about the barnyard and pastures it is next to impossible to bring them under control, under range conditions.

When the animals -- cattle were used in the experiment -- are dosed with phenothiazine the flies go ahead and lay their eggs in the manure, but enough of the drug passes through the animal to kill the larvae. This method of control, is impractical at present, says Doctor Bishopp, because of the cost of constantly dosing the animals and because the drug when given to dairy cows results in the milk becoming reddish after being aired.

Doctor Bishopp also reports the discovery of a method of treating screw worms with phenothiazine. Powdered phenothiazine, when applied to wounds, does not prevent egg-laying, but as with the horn fly the larvae are killed. However, in later experiments it was found that diphenylamine, one of the materials from which phenothiazine is made, is a cheaper and more effective treatment.

Based on U.S.D.A. Press Release

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THE WAISTLINE COUNTED IN 1805

In 1805 fat steers produced in the Scioto Valley in southern Ohio, which was then the western frontier, were the first to be driven across the Alleghenies to Baltimore to supply eastern markets with beef. These cattle travelled along the same route on which Baltimore and Ohio Railway travelers now consume steaks, chops, and other meat dishes in air-conditioned dining cars. In Baltimore these cattle were sold for \$25 each, plus a dollar for each inch of waist-line circumference over a minimum average. Hogs also were driven over the mountains. They were far different from the hogs of today. Most hogs at that time were razorbacks which were allowed to rove freely in the forest. --Meat and Live Stock Digest, January 1940.

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A specialty should not be a door between the specialist and all the rest of life, but a window through which he may view the spectacle, as a whole, and grow in wisdom. --Huxley

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PERSONNEL NOTES

Hawaii

Frank G. Sutherland has been appointed extension animal husbandman in the Hawaiian Extension Service, vice Paul A. Gantt, resigned.

Louisiana

W. T. Cobb, extension animal husbandman in the Louisiana Extension Service appeared on the program of the recent annual meeting of the American National Live Stock Association at Denver and discussed the subject, "The South in the National Livestock Picture".

Montana

Edwin Paul Orcutt was appointed extension animal husbandman on February 16, 1940, to fill the vacancy created by the resignation of Howard G. Lewis. Mr. Orcutt has been county agricultural agent in Meagher County, Mont., for several years.

North Carolina

Ellis V. Vestal has been made assistant swine specialist to supplement the work of H. W. Taylor. Mr. Vestal formerly was county agricultural agent in Greene County and graduated from the N. C. State College of Agriculture in 1929.

Ohio

John W. Wuichet, swine specialist in the Ohio Extension Service for many years and more recently supervisor of the Agricultural Conservation program in Ohio, died on January 13, 1940.

Oklahoma

Paul G. Adams, extension animal husbandman, was appointed State 4-H club leader on March 1, 1940, to succeed B. A. Pratt.

Utah

Harry H. Smith of the animal husbandry staff of the State agricultural college is now devoting about half-time to extension work, principally with beef cattle.

U.S.D.A.

M. L. Wilson became director of Extension Service on February 1, 1940. At the same time C. W. Warburton became Deputy Governor of the Farm Credit Administration.

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On the average, it is about eight years before a successful research project attains the profit stage. Moreover, its success may be based on fundamental discoveries that were a half century or longer in development. --Chas. M.A. Stine before land grant college meeting.
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RECENT PUBLICATIONS

(This list is limited to publications of interest to extension workers. In most cases copies are available from the institution or agency issuing them. Do not write Washington for other than U.S.D.A. publications.)

Federal

"Report of the Secretary of Agriculture, 1939" - U.S.D.A., Washington, D.C., pp. 169.

"Statistics of Beef Cattle, Hogs, Sheep, Horses and Mules" (Separate from Agricultural Statistics, 1939, No. 35) - U.S.D.A., Washington, D.C., pp. 67.

"United States Livestock Report: January 1, 1940" - Agricultural Marketing Service, U.S.D.A., Washington, D.C., mimeo. pp. 14.

"Hay Quality - Relation to Production and Feed Value" by E.O. Pollock and W.H. Hosterman, Agricultural Marketing Service, U.S.D.A., Washington, D.C. - Misc. Pub. No. 363, Nov. 1939, pp. 34.

"Driven-In Receipts of Livestock, 1939" - Agricultural Marketing Service, U.S.D.A., Washington, D.C., Jan. 1940, pp. 19 (tables).

"The Wool Situation" - Bureau of Agricultural Economics, U.S.D.A., Washington, D.C., Mar. 1940, mimeo. pp. 20.

"Feed Statistics" (Supplement to the Feb. 1940 issue of the Feed Situation) - Bureau of Agricultural Economics, U.S.D.A., Washington, D.C., Feb. 1940, mimeo. pp. 77 (tables).

"The Farm Outlook for 1940" - Bureau of Agricultural Economics, U.S.D.A., Washington, D.C., Misc. Pub. No. 379, pp. 46, Figs. 13.

"Food, Feed, and Southern Farms" (A Study of Production in Relation to Farm Needs in the South), by Oscar Steanson and E.L. Langsford - Bureau of Agricultural Economics, U.S.D.A., Washington, D.C., Farm Management Reports - No. 1, Nov. 1939, pp. 25, tables 7.

"Two Rapid Methods for Estimating Fineness and Cross-Sectional Variability of Wool", by J. I. Hardy and H. W. Wolf - Bureau of Animal Industry, U.S.D.A., Washington, D.C., Circ. No. 543, Dec. 1939, pp. 16, figs. 8.

"Phenothiazine as an Anthelmintic", by Paul D. Harwood - Bureau of Animal Industry, U.S.D.A., Washington, D.C., mimeo. pp. 3.

"Production of Hogs Suitable for Wiltshire Sides", by R.E. Hutton and E.Z. Russell - Bureau of Animal Industry, U.S.D.A., Washington, D.C., Circ. No. 532, Nov. 1939, pp. 35, tables 25.

"What may be Expected of Administrative Research (Educational Research) as a Means of Increasing the Effectiveness of Extension Teaching", by Irving Lorge - Extension Service, U.S.D.A., Washington, D.C., Ext. Serv. Circ. 317, Dec. 1939, mimeo., pp. 6.

"Cooperative Marketing of Fleece Wool", by James M. Coon - Farm Credit Administration, U.S.D.A., Washington, D.C., Bulletin No. 33, May 1939, pp. 84, figs. 23.

"Cooperative Marketing of Livestock at Cincinnati", by H.H. Hulbert - Farm Credit Administration, U.S.D.A., Washington, D.C., Bulletin No. 34, May 1939, pp. 130, figs. 24, tables 34.

State

"Beef Cattle Enterprise Efficiency Studies in California" (A four-year summary, 1935-38, inclusive) - Compiled by L. W. Fluharty, Extension Service, College of Agriculture, Berkeley, Calif., Sept. 1939, mimeo., pp. 48, tables 30.

"Creep-Feeding of Spring Lambs", by Robert F. Miller - California Experiment Station Circular 348, Nov. 1939, pp. 10, figs. 5.

"Protein Supplements for Swine", by Z. A. Massey - Georgia Experiment Station Circular 118, July 1939, pp. 8, tables 4.

"Preliminary Report on Beef Cattle Feeding Investigations", by Z. A. Massey - Georgia Experiment Station Circular 119, Aug. 1939, pp. 4, tables 3.

"Colt Production in Iowa", by A. B. Caine - Iowa Experiment Station Bulletin Pl, Dec. 1939, pp. 30, figs. 4, tables 7.

"Local Hog Marketing Practices in Iowa", by Geoffrey Shepherd and Norman V. Strand - Iowa Experiment Station Research Bulletin 262, Aug. 1939, pp. 34, figs. 22.

"Lambing Time", by Richard C. Miller - Kentucky Extension Service Circular No. 346, Jan. 1940, pp. 30, illus.

"Fitting and Showing Beef Cattle", by M. E. Ensminger - Massachusetts Extension Service Leaflet 184, Aug. 1939, pp. 16, figs. 11.

"Dual Purpose Cattle", by W. H. Peters, et al - Minnesota Extension Service Bulletin 203, June 1939, pp. 15, figs. 6.

"Fall versus Spring Calving", by Ray H. Means - Mississippi Experiment Station Bulletin No. 328, May 1939, pp. 14, figs. 4.

"Cottonseed Meal and Cake for Finishing Mature Steers on Pasture", by Ray H. Means - Mississippi Experiment Station Bulletin No. 329, May 1939, pp. 10, figs. 3, tables 4.

"Pregnancy Disease of Sheep", by Cecil Elder and A. W. Uren - Missouri Experiment Station Bulletin 412, Jan. 1940, pp. 16, figs. 5.

"Loading Livestock", by K. B. Huff - Missouri Extension Service Circular 407, June 1939, pp. 4, illus.

"Lamb and Mutton on the Farm", by T. A. Ewing and Flora L. Carl - Missouri Extension Service Circular 408, July 1939, pp. 22, figs. 15.

"Overgrazing Increases Production Costs by Reducing Number and Weight of Range Calves", by Leon C. Hurtt - Northern Rocky Mountain Forest & Range Experiment Station, Missoula, Mont., - Applied Forestry Notes No. 92, Sept. 1939, mimeo. pp. 3.

"Feeding Sorghum Grain to Growing and Fattening Pigs", by Marvel L. Baker and Cletus F. Reinmiller - Nebraska Experiment Station Bulletin 323, Oct. 1939, pp. 8, tables 4.

"Farm Refrigerated Storages", by Earl L. Arnold - New York Experiment Station Bulletin 724, Sept. 1939, pp. 40, figs. 11

"Raising Hogs in North Carolina", by H. W. Taylor and J. E. Foster - North Carolina Extension Service Circular No. 238, Nov. 1939, pp. 25, illus.

"Lamb Grading in North Carolina, 1939" - Division of Markets, North Carolina Department of Agriculture, Raleigh.

"Hybrid and Open-pollinated Corns for Pigs", contained in Ohio Experiment Station Bimonthly Bulletin No. 201, Nov.-Dec. 1939, pp. 8, tables 6.

"Substitutes for Corn for Growing and Fattening Pigs", by W.L. Robison - Ohio Experiment Station Bulletin 607, Sept. 1939, pp. 60, tables 30.

"Beef Cattle Feeding Investigations", by W. L. Blizzard - Oklahoma Experiment Station Bulletin No. 237, Nov. 1939, pp. 18.

"Annual Report of Livestock Grading in Virginia, 1939", by C. P. McClaugherty - Division of Markets, Virginia Department of Agriculture, Richmond, Va.

"Statistical Report, Livestock Grading and Marketing in West Virginia, 1939", - Animal Husbandry Extension, West Virginia University, Morgantown.

Other

"The 1940 Belgian Review" - published annually by The Belgian Draft Horse Corporation of America, Wabash, Indiana, pp. 72, illus.

"Cottonseed Meal, Origin, History, Research", a textbook by Robert S. Curtis - Robert S. Curtis Publishing Company, State College Station, P. O. Box 5432, Raleigh, N.C. - pp. 550; cloth, \$5.00; 20 percent discount for educational purposes.

"The Horse Industry" - National Youth Administration for Kentucky, Third and Main Streets, Louisville, Ky., May 1939, mimeo. pp. 54, illus.

"The Meat We Eat", a textbook by P. Thomas Ziegler, 203 Agricultural Building, State College, Pa. -- pp. 150, price \$1.75.

"Percheron News - Jan. 1940" - issued by The Percheron Horse Association of America, 9 Dexter Park Ave., Chicago, ill.

"Sire of Sires - Laet" - distributed by W.H. Butler, Woodside Farms, Columbus, Ohio, pp. 69, illus.

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NONRAIL RECEIPTS OF LIVESTOCK, 1939

The table below presents the "drive-in" (nonrail) receipts of livestock in 1939 at 17 principal markets, also the percentage such receipts were of total receipts. Based on total reported receipts at the listed markets, the percentage of each kind of livestock classified as "drive-ins" was as follows - Hogs, 75.3 percent; calves, 64.4 percent; cattle, 62.3 percent; and sheep and lambs, 32.3 percent.

<u>Market</u>	<u>No. head drive-ins</u>	<u>Percentage of total receipts</u>
East St. Louis	3,458,267	73.0
Chicago	3,301,990	37.1
So. St. Paul	3,131,424	65.5
Indianapolis	2,696,769	96.6
Omaha	2,324,829	49.9
Sioux City	1,985,513	75.0
Ft. Worth	1,827,401	78.2
Kansas City	1,400,261	38.9
St. Joseph	1,379,618	62.2
Oklahoma City	1,224,319	91.6
Cincinnati	1,168,601	74.0
Wichita	813,989	82.3
Milwaukee	785,247	70.1
Sioux Falls	687,179	96.8
Louisville	643,257	81.5
Denver	642,251	16.9
Portland	267,687	42.5

Total 27,738,602 Average 58.2

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